MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2015/2016

MVR2053 – COLLABORATIVE VIRTUAL ENVIRONMENT

(All sections / Groups)

1 MARCH 2016
2.30PM – 4.30PM
(2 Hours)

INSTRUCTION TO THE STUDENT

1. This Question paper consists of 4 pages including cover page with 6 questions only.

2. Answer only **4 (FOUR) out of 6 questions.** Total marks is 40 (FORTY) marks altogether. The distribution of the marks for each question is given accordingly at the end of each question.

3. Please write all your answers clearly in the answer booklet provided.

Answer 4 (FOUR) questions ONLY.
Total marks is 40

Question 1

"Networked Collaborative Virtual Environments (NCVEs) are online digital virtual places and spaces where we can be in touch, play together and work together, even when we are, geographically speaking, and worlds apart." [Churchill/Snowdon/Munro 2001]

a) List down all four key components for NCVE design. [4 marks]

b) There are two contradictory constraints for NCVE design. Discuss what are the two constraints and the potentially conflicting solutions to satisfy these two constraints. [6 marks]

Question 2

Space structuring and user representation are among the challenges that arises in the implementation of NCVE system.

For space structuring challenge:

a. How do the space structuring works in NCVE? [2 marks]

b. List down and briefly explain all four of the typical strategies in space structuring challenge [4 marks]

For user representation challenge:

c. User representation determines the way user perceives each other in the virtual environment. What are the solutions to maintain the quality of user representation in NCVE? [4 marks]

Continued...

Question 3

The infrastructure of networking-related decision brings a big impact on overall performance and scalability in NCVE.

a. List down the differences among all of networking infrastructure as listed in table 1. [8 marks]

TCP	
UDP	
IP Broadcasting	
IP Multicasting	

Table 1

b. Centralize repository is one of the shared state situation in NCVE. What is the advantage and disadvantage of the **repository in server memory?** [2 marks]

Question 4

Sense of presence in network collaborative virtual environment (NCVE)

a. Briefly explain about the Reciprocity of Perspective. [2 marks]

b. What are the factors that create the sense of presence and reality in NCVE? List down all of them. [4 marks]

c. List down 4 factors that can decrease the sense of presence in NCVE [4 marks]

Question 5

Developing engagement properties in collaborative virtual environment (NCVE)

a. Briefly explains: **(1)View of the environment, (2)Action point in the environment** and **(3)Position in the environment** in developing engagement properties for determining interaction and presence within the space. [6 marks]

b. What are the Capabilities of the user vehicles in the engagement properties? Discuss about it and give example to support your explanation. [4 marks]

Continued...

Question 6

Collaborative navigation and co-manipulation in Network collaborative virtual environment (NCVE)

a. Brief explain all three models of collaborative navigation in NCVE. [6 marks]

b. Discuss the co-manipulation and two solutions for co-manipulation in NCVE? [4 marks]

End of Paper